

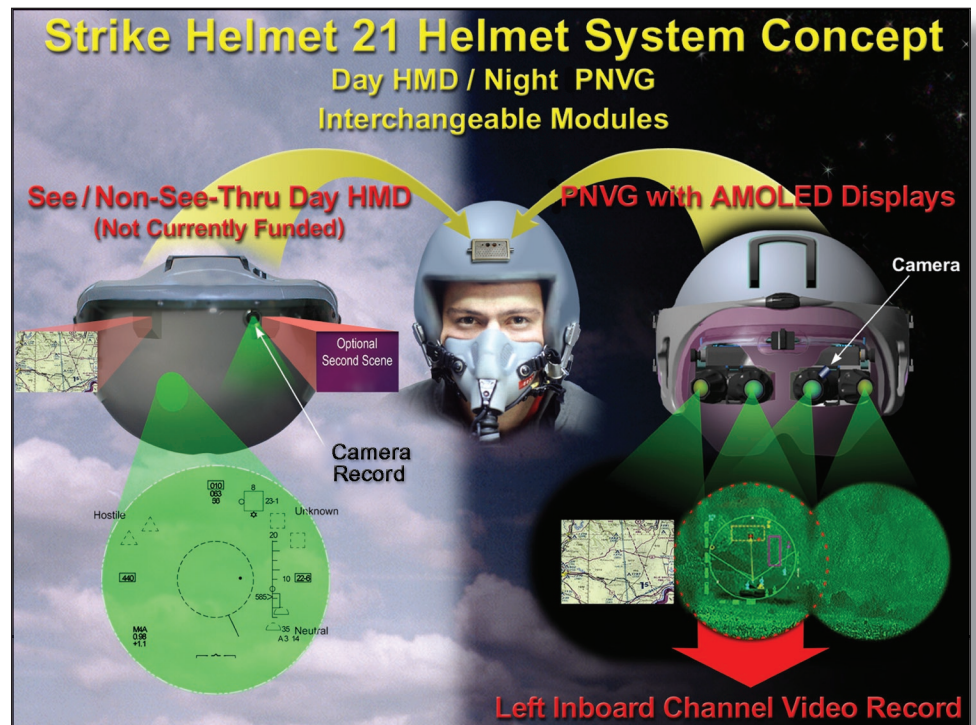


# Air Force Research Laboratory|AFRL

*Science and Technology for Tomorrow's Air and Space Force*

## Success Story

### NEW MICRODISPLAY TRANSITIONS TO USAF AND INDUSTRY



The Human Effectiveness Directorate transitioned a new type of microdisplay, ideally suited for use in helmet-mounted displays (HMDs), into the US Air Force Strike Helmet 21, Panoramic Night-Vision Goggle (PNVG), and Digital Knee Board programs as well as industry.



Air Force Research Laboratory  
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### **Accomplishment**

Current airborne military HMDs use miniature cathode-ray tubes (CRTs) to produce the images the pilot sees. These CRTs have drawbacks however. They are bulky, do not emit light efficiently, cannot easily produce color, and require potentially hazardous high voltages.

The directorate created a microdisplay technology that overcomes these issues. Termed active-matrix organic light-emitting diodes (AMOLEDs), these new displays are small, thin, lightweight, low-voltage, low power, and completely self-contained with their own video controller.

AMOLED manufacturers use the same techniques as those used to make semiconductors, so they produce displays in one continuous, economical process. AMOLEDs occupy minimal space and can run on battery power, maintain visibility in bright environments, and emit the same range of colors as a desktop CRT.

### **Background**

The directorate produced AMOLEDs through Phase III Small Business Innovation Research and Dual-Use Science and Technology programs. According to one estimate, more than 100 companies are pursuing this technology. Since the transition of AMOLED technology to the US Air Force, the US Army, and commercial contractors, far-reaching benefits are possible such as wide field-of-view PNVGs, high-definition television, three-dimensional game systems, and digital video disc players.

Human Effectiveness  
Support to the Warfighter

### **Additional information**

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-HE-06)